

REMARKS

In the Office Action, claims 1-2, 7, 9, 11, 14 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Collins et al., claims 3-4, 6, 8 and 17-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Collins et al. in view of Shukuri et al., and claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Collins et al. in view of Shukuri et al. and Veerasamy. claims 10 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Collins et al. in view of Parker, and claims 11 and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Collins et al. in view of Newby et al.

As described in the instant invention and shown in Figs. 1 and 2, the method of manufacturing the evacuated glass panel applies a solution layer only on the surface of the bottom planar glass sheet. The support means are not coated with any solder glass. After the top planar glass sheet is placed on the support means and compressed with the bottom planar glass sheet, the residue of the solution layer forms a buffering layer to increase the mechanical strength of the evacuated glass panel. Furthermore, the support means are adhered only to the bottom planar glass sheet by the residual layer as shown in Fig. 2. The top planar glass sheet is supported by but not adhered to the support means. This method provides an important advantage that the two planar glass sheets can be assembled together to form the evacuated glass panel without enduring non-uniform stress caused by the height difference among the support means.

Collins et al. disclose a thermally insulating glass panel comprising two spaced

apart sheets of glass with support pillars in between. As shown in Fig. 3 and described in the disclosure, the pillars 5 have a glass, ceramic, metal or other material core 9 completely coated with solder glass 10. The surfaces of the pillars are fused during the fabrication process and form mechanical joints between the pillars 5 and the glass sheets 2 and 3 (col. 5, lines 26-31). The operation involves, raising the temperature of the window to a working temperature, holding it at that temperature for a certain specified time and then cooling. This fuses the solder glass joint around the periphery of the panel and over the exterior surface of the pillars (col. 6, lines 53-58). The two glass sheets move towards each other whilst the solder glass is molten but the motion ceases when the sheets come into contact with the glass spheres within the pillars (column 6, line 61-64). In order to increase the extent of the wetted region, thin coatings of solder glass 19 are applied to both sheets of glass 2 and 3 and in the vicinity of pillars 5 (col. 7, lines 17-20).

In comparison with the instant invention, the pillars of Collins are adhered to both glass sheets and form mechanical joints. In addition, the thin coatings of solder glass are applied to both sheets of glass during the fabrication. In other words, the insulating glass panel manufactured by Collins has support pillars adhered to both top and bottom glass sheets. As a result, it can not achieve the advantage of the instant invention in which the support means are adhered only to the bottom planar glass sheet by the residual of said solution layer and the two planar glass sheets can be assembled together to form the evacuated glass panel without enduring non-uniform stress caused by the height difference among the support means.

In the detailed action, the examiner rejects claim 1 by citing Collins et al. as having disclosed the steps recited in claim 1. As discussed above, there are significant differences in the steps of forming the evacuated glass panel between Collins et al. and the instant invention in that the pillars of Collins are coated with solder glass and the thin coatings are applied to both glass sheets. In response to the rejection, claim 1 is further amended to specifically cite that said support means being adhered only to said first planar glass sheet by dried residual of said solution layer to clearly claim the different physical structure resulted from the different manufacturing steps. As pointed out in the above discussion, the instant invention as recited in claim 1 provides unexpected advantage that can't be achieved by Collins et al. Applicants respectfully conclude that the amended claim 1 should have distinguished over Collins et al. and overcome the rejection under 35 U.S.C. §103(a).

In the detailed action, the rejections of claims 2-18 presume that claim 1 is not allowable. As discussed above, the amended claim 1 has overcome the rejection. By virtue of dependency, claims 2-18 should all be allowable.

From the foregoing discussion, applicants have presented clear evidence that the instant invention differs from the cited prior arts. The physical difference results in different effects and is not obvious. Claims 1-18 are now in full condition for allowance. Prompt and favorable reconsideration of the application is respectfully solicited.

Respectfully submitted,

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